

Claims

- 205 1. A method for safely coupling an external voltage network to an operating voltage network, in particular of a motor vehicle,
in which at least one controllable switch (Q_2) is arranged between the
operating voltage network (BN) and a connecting terminal (VK), the at
least one controllable switch is connected to a control unit (SG), the
210 connecting terminal (VK) is designed for connection of the external
voltage network (FN) and the method comprises the following steps:
- measuring the voltage at the connecting terminal (VK),
 - 215 – examining whether the measurement voltage is not below a lower
threshold value and not in excess of an upper threshold value,
 - closing the controllable switch (Q_2) if the measurement voltage is
within the permissible range,
 - 220 – measuring the current flowing between the connecting terminal
(VK) and the operating voltage network (BN),
 - examining whether the current is not below a lower threshold value,
 - 225 – opening the at least one controllable switch (Q_2) if the current is
outside the permissible range.
2. A method according to claim 1,
230 characterized in that the method steps are carried out with activated
ignition lock (Q_1) only.
3. A method according to claim 1,
235 characterized in that the controllable switch (Q_2) is opened when the
current between the connecting terminal (VK) and the operating voltage
network (BN) is in excess of an upper threshold value.

4. A method according to claim 1,
characterized in that, after opening of the controllable switch (Q_2), this
240 state is maintained until the voltage at the connecting terminal (VK)
drops to zero or falls below a lower threshold value.
5. A method according to claim 1,
characterized in that the measurement of the voltage at the connecting
245 terminal (VK) is carried out permanently during the entire process.
6. A method according to claim 1,
characterized in that the results of the measurement result examination
steps are output via a display unit (AE).
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7. A method according to claim 1,
characterized in that, after opening of the at least one controllable
switch (Q_2), said switch (Q_2) is closed again at regular intervals in order
to determine whether the operational state that caused opening of said
255 switch (Q_2) is still present.
8. A circuit arrangement for carrying out the method according to any of
claims 1 to 7.
- 260 9. A circuit arrangement according to claim 8,
characterized in that the controllable switch (Q_2) is a relay.
10. A circuit arrangement according to claim 8 or 9,
characterized in that the connecting terminal (VK) is covered by a cap
265 (AK) and the latter is connected to a switch (Q_3) such that the switching
state of said switch (Q_3) changes upon removal of the cap from the
connecting terminal (VK).
11. A circuit arrangement according to any of claims 8 to 10,

270 characterized in that the operating voltage network (BN) is the supply network of a first motor vehicle (A) and that the external voltage network (FN) is the supply network of a second motor vehicle (B), or a charging device.

275 12. A circuit arrangement according to claim 8, characterized in that a measurement resistor (R_m) is connected between the terminal means of the connecting terminal (VK).